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Research Article

Vocational Identity and Ego Identity Status in Korean Nursing Students

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SUMMARY

Purpose: The purpose of this study was to investigate the association between vocational identity and ego identity status among Korean nursing students.
Methods: The participants were 311 nursing students in South Korea who were attending either a 4-year bachelor's program or a 3-year diploma program. Data were collected using self-report questionnaires that addressed vocational identity, ego identity status, and demographic information. The data were analyzed using descriptive statistics, one-way analysis of variance, *t* test, and Chi-square test.
Results: In terms of ego identity status, 31.5% of nursing students were classified as being in diffusion status, followed by 28.3% in low profile moratorium status, 14.8% in moratorium status, 14.1% in foreclosure status, and 11.3% in achievement status. Vocational identity differed according to ego identity status; vocational identity among students who were in achievement status was higher than for those in all other statuses. Vocational identity also differed according to grade level and monthly family income. Ego identity status was related to the type of program enrolled in, grade level, and monthly family income.
Conclusions: These findings show that nursing students in identity achievement status have secure and clear vocational identities. Further longitudinal and qualitative studies are needed to find out if identity formation among nursing students changes with age.

Introduction

Nursing students aim to become professional nurses who can call on their own abilities to take care of patients in clinical fields. To become professional nurses, students must have a clear understanding of their capacities and a commitment to their vocational interests in the nursing profession [1]. Nurses who have an understanding of their capacities and a commitment to their vocational goals usually have well-established vocational identities. These nurses are confident in their decision-making ability even in the face of environmental ambiguities [1]. Nursing students start to develop their vocational identity in nursing school and continue to cultivate it throughout their nursing careers [2]. Vocational identity is defined as having a clear and secure understanding of one's career goals, abilities, educational interests, and personal values [1].

Nursing students' vocational identity has been known to be correlated with the successful transition from school to work [3]. Nursing students with low levels of vocational identity were more likely to leave a nursing career [3], while students with high levels of vocational identity were likely to stay fixed on this career path [4]. Likewise, adolescents with strong levels of vocational identity felt more positive about their future work possibilities [5]. In other words, the progress of vocational identity can be recognized as a central component of career development [6] and as an adaptation to the social context [7].

Vocational identity in adolescents and young adults is related with psychological well-being [5,8] and high levels of life satisfaction [9]. Adolescents with strong vocational identities experienced relative increases in life satisfaction within a year's time [6]. Research suggests the achievement of a well-established vocational identity is an important developmental task for adolescents and young adults [5].

Vocational identity is known to be related to ego identity status. Ego identity is defined as the sense of self, developed through social interactions; it is constantly changing due to new information an individual gains through experiences both in the past and in the future [10].

Ego identity is denoted as a comprehensive developmental task that an individual achieves as a result of psychosocial crises in late

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adolescence and in preparation for adulthood [10]. Marcia elaborated upon the concept of Erikson's ego identity by adding two dimensions to the theory [11,12]. Marcia distinguished four identity statuses based on two dimensions of crises including exploration (i.e., choosing among alternatives) and commitment (i.e., personal investment in the alternatives chosen) [11,12]. Two crucial areas in which an individual is forced to explore alternatives or commit to a choice are occupation/career and ideology.

The four identity statuses defined by Marcia include achievement, moratorium, foreclosure, and diffusion. Youth in achievement status have both explored their options and made a commitment to a preferred option [11]. Individuals in moratorium status experience exploration, but commitment to a single choice is vague [11]. Youth in foreclosure status have made a firm choice, but this choice is often dictated by the values of parents or peers, and the youth have not explored alternatives [11]. Youth in diffusion status display no apparent commitments and no interest in exploring alternatives [11]. Each identity status has unique characteristics. Individuals in achievement status scored higher on well-being and lower on psychological problems, while individuals in moratorium status scored higher on anxiety and lower on psychological well-being [13]. Individuals in foreclosure status showed high authoritarianism and conventionality but low anxiety, while individuals in diffusion status lacked motivation to move out of this developmental stage [13].

It has been proposed that ego identity status develops progressively through the four stages beginning with diffusion and progressing to foreclosure, moratorium, and finally, achievement [12,13]. Kroger, Martinussen, and Marcia [14] meta-analyzed 124 studies and verified that progressive changes of ego identity status (i.e., from diffusion to foreclosure, moratorium, and then achievement) were more prevalent than regressive changes (i.e., from achievement to moratorium, foreclosure, and then diffusion). The results of a 5-year longitudinal study [15] showed that some ego identity statuses changed progressively, but at the same time, other ego identity statuses were stable. The authors [15] reported that ego identity status was changed by dealing with commitment. Waterman [13] suggested that the change to achievement status is more likely to occur during adolescence and in the transition to adulthood, especially when individuals are in college. Therefore, the ego identity statuses of college students, including nursing students, should be recognized by educators, while individual students should be encouraged to progress toward achievement status.

Luycks, Duries, Klimstra, and Witte [16] found that young adult employees in achievement status scored higher on work engagement and lower on burnout than did employees in diffusion status, and that they considered the attainment of identity achievement to be a personal resource that affected their career outcomes. Marcia [11,12] proposed that ego identity was based on exploration and commitment of occupation/career, and that ego identity was related to the thought of vocation. In addition, previous studies found that vocational development was associated with identity achievement [5,17]. However, one study reported that the development of ego identity status in college students was not in accord with vocational identity development [18]. The development of vocational identity and ego identity status is important for nursing students so that they can become fully engaged, professionally-satisfied nurses. However, there are few studies on vocational identity and ego identity status among Korean nursing students. Therefore, research on the relatedness of vocational identity and ego identity status among Korean nursing students is needed to build knowledge on identity development among this subset and to support their identity achievement.

Waterman reported that there was no gender difference in ego identity status [13], but Guerra and Braungart-Rieker found that male students showed a higher degree of identity diffusion than did female students [19]. Worthington et al [6] found poorer vocational identity among male nursing students than among their female counterparts [3]. Studies on both vocational identity [6] and ego identity status [13–15] reported that higher grade levels correlated with more advanced identity status in students. Also, social barriers such as a low socioeconomic status, a lack of educational opportunity, and a dangerous external environment were known to hinder individuals in exploring identity alternatives and in fulfilling identity commitment [20]. Thus, this study looked at vocational identity and ego identity status in connection with several demographic factors including gender, grade level, the type of educational program being pursued, parents' educational level, and family income.

Therefore, the first aim of the study was to examine the association between vocational identity and ego identity status. The second aim was to examine vocational identity and ego identity status in relation to demographic factors of the participating Korean nursing students, including student gender, grade level, the type of educational program enrolled in, parents' educational level, and family income.

In addition, the specific questions posed by the study were as follows: First, is the vocational identity of Korean nursing students associated with ego identity status? Second, are the vocational identity and ego identity statuses related to demographic factors of Korean nursing students?

Methods

Study design

This study used a cross-sectional descriptive study design to investigate the relationships between vocational identity and ego identity status among Korean nursing students.

Setting and samples

Participants in this study were a convenience sample of nursing students in South Korea who either attended a 4-year bachelor's program or a 3-year diploma program and who voluntarily consented to participate. The sample size for one-way analysis of variance was calculated with the G-power 3.1.2 program. The study required 305 participants to achieve a medium effect size of .25, a statistical power $(1-\beta)$ of .95, and a significance level (α) of .05. Thus, this study targeted 335 nursing students, including potential dropouts. Of the 335 nursing students invited in this study, 330 answered the questionnaire and of that, 311 (94.2%) provided complete and usable data to be included in data analysis.

Participants (91.0% female, 9.0% male) were between 18 and 48 years old ($M = 21.11$, $SD = 4.69$). Fifty-four percent attended a 4-year bachelor's program and the rest attended a 3-year diploma program; 32.2% were freshmen, 27.3% were sophomores, 26.7% were juniors, and 13.8% were seniors. Additionally, 52.8% of the participants' fathers and 38.4% of the participants' mothers had earned a 4-year college degree or higher. The monthly family income for approximately 16.2% of participants was 2,000 USD or less; for 47.7%, between 2,001 and 4,000 USD; for 25.2%, between 4,001 and 6,000 USD; and for 10.9%, 6,001 USD or more.

Ethical considerations

This study was approved by the Institutional Review Board (CR-14-046) of the hospital. After explaining the purpose and method of

the study, written consent was obtained from each participant. Participants were informed that responses would only be used for the study, all personal information would be kept confidential, and that they could withdraw from the study at any time without penalty. Additionally, each student was given a small gift for participating.

Measurements

Vocational identity

Vocational identity was measured using the Career Identity Scale for College Students, which was developed by Kim and Kim [21] and verified for its internal consistency, test-retest reliability, construct validity, convergent validity, and discriminant validity [21].

This self-report tool consists of 23 items divided into three subdimensions, including emotion (8 items), cognition (8 items), and behavior (7 items). The emotion subdimension has items that indicate respondents' anxiety or confidence related to having a clear and secure picture of their career paths. Items of the cognition subdimension indicate self-understanding, self-consciousness, belief, or value related to having a clear and secure picture of one's career. Items of the behavior subdimension indicate engaging in actual behaviors related to having a clear and secure picture of one's career.

Respondents answer each item on a 5-point, Likert-type scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Total scores range from 23 to 115; higher scores indicate an individual's clear and secure self-concept of his/her career choice. Cronbach α in Kim and Kim's study [20] was .89 for the emotion subdimension, .78 for the cognition subdimension, and .72 for the behavior subdimension. Cronbach α for the current study was .88, .80, and .78 for emotion subdimension, cognition subdimension, and behavior subdimension, respectively.

Ego identity status

Ego identity status was measured using the Extended Objective Measure of Ego Identity Status II developed by Bennion and Adams [22]. Shin [23] translated the questionnaire into Korean and verified the internal consistency, test-retest reliability, construct validity, and discriminant validity of the Korean version.

This self-report questionnaire consists of 64 items divided into two areas including an ideological area (32 items) and an interpersonal area (32 items). The ideological area consists of four subjects (occupation, religion, politics, and philosophical lifestyle) and the interpersonal area consists of four subjects (friendship, dating, sex roles, and recreation). Each of the eight subjects has eight items, including four exploration items related to identity category (achievement, moratorium, foreclosure, and diffusion) and four commitment items related to identity category (achievement, moratorium, foreclosure, and diffusion). Each item is assessed on a 6-point, Likert-type scale, ranging from 1 (*strongly disagree*), to 6 (*strongly agree*).

To classify the ego identity status of a participant, scores for the four identity categories are summed in both the ideological area and the interpersonal area. Means and standard deviations for each of the four scores are generated and cutoff points are established for each of the four categories ($M + 0.5 \times SD$) following recommendations from previous studies [24,25]. Participants scoring above the cutoff point in one identity category are classified into pure identity status (achievement, moratorium, foreclosure, and diffusion) while those scoring above the cutoff point on two identity categories or more were classified into one of the less advanced identity statuses (moratorium, foreclosure, or diffusion). Participants scoring below the cutoff point on all identity categories were classified into the low profile moratorium status which has low levels of all identity categories and was not classified into any preexisting status. Cronbach α in Shin's study [23] was .79 for achievement, .70 for moratorium, .87 for foreclosure, and .76 for diffusion. Cronbach α for achievement, moratorium, foreclosure and diffusion in this study was .77, .60, .84, and .67, respectively.

Data collection

A preliminary survey of 10 nursing students was conducted May 14th–16th, 2014, to determine possible problems related with response bias. Results did not show problems related with response bias.

Data for this study were collected June 2nd–13th, 2014, from 330 nursing students in South Korea who were enrolled in a 4-year bachelor's program or a 3-year diploma program. After approval was gained from the nursing professors who oversaw the programs in question, nursing students were invited to participate in the study. Once nursing students voluntarily consented to participation, they were asked to complete a self-report questionnaire that included questions about vocational identity, ego identity status, and demographic information.

Data analysis

The collected data were analyzed using SPSS version 19.0 (IBM SPSS Statistics, Chicago, IL, USA). Demographic characteristics, vocational identity, and ego identity of nursing students were analyzed with descriptive statistics. The difference in vocational identity according to ego identity status was analyzed with one-way analysis of variance. The difference in vocational identity according to demographic characteristics was analyzed with t test and one-way analysis of variance. The relationships between ego identity status and demographic characteristics were analyzed with Chi-square test.

Results

Descriptive data of vocational identity and ego identity

Descriptive data of vocational identity and ego identity are presented in Table 1. The mean score of vocational identity was 82.06 ± 12.31. The mean scores for the subdimensions for vocational identity were 27.68 ± 6.30 for emotion, 31.32 ± 4.50 for cognition, and 23.06 ± 4.21 for behavior.

The mean scores for the ego identity categories were 58.99 ± 8.83 for achievement, 54.12 ± 6.73 for moratorium, 39.44 ± 9.88 for foreclosure, and 48.58 ± 7.98 for diffusion. In addition, the cutoff points for the ego identity categories were 63.40 for achievement, 57.49 for moratorium, 44.38 for foreclosure, and 52.57 for diffusion.

Table 1 *Descriptive Data of Vocational Identity and Ego Identity (N = 311).*

Categories	$M \pm SD$	Cutoff point	Min.	Max.
Vocational identity	82.06 ± 12.31		45	112
Emotion	27.68 ± 6.30		10	40
Cognition	31.32 ± 4.50		18	40
Behavior	23.06 ± 4.21		11	34
Ego identity				
Achievement	58.99 ± 8.83	63.40	34	84
Moratorium	54.12 ± 6.73	57.49	35	78
Foreclosure	39.44 ± 9.88	44.38	16	71
Diffusion	48.58 ± 7.98	52.57	28	72

Differences in vocational identity according to ego identity status

The proportion of each ego identity status and differences in vocational identity according to ego identity status are presented in Table 2.

Ego identity status was classified into five groups in agreement with the cutoff point rule. The proportions for the ego identity status were 11.3% for achievement status, 14.8% for moratorium status, 14.1% for foreclosure status, 31.5% for diffusion status, and 28.3% for low profile moratorium status.

Vocational identity was significantly different according to ego identity status ($F = 19.24$, $p < .001$). In particular, vocational identity values among students who were in achievement status were higher than those for students in moratorium or foreclosure status, but students who were in moratorium or foreclosure status had higher vocational identities than those in diffusion status. Additionally, vocational identity among students in achievement status was higher than that of students in low profile moratorium status.

The emotion subdimension of vocational identity was different according to ego identity status ($F = 11.90$, $p < .001$). Specifically, the emotion subdimension of vocational identity among students in achievement status was higher than that of students in all other statuses.

The cognition subdimension of vocational identity was different according to ego identity status ($F = 19.18$, $p < .001$). In particular, the cognition subdimension of vocational identity among students in achievement status was higher than that of students in low profile moratorium status, which, in turn, was higher than that of students in diffusion status. Lastly, the cognition subdimension of vocational identity among students in achievement or moratorium status was higher than that of students in foreclosure or diffusion status.

The behavior subdimension of vocational identity was different according to ego identity status ($F = 9.95$, $p < .001$). Particularly, the behavior subdimension of vocational identity among students in achievement status was higher than that of students in diffusion or low profile moratorium status.

Differences in vocational identity according to demographic characteristics

Differences in vocational identity according to demographic characteristics are presented in Table 3. Vocational identity was significantly different according to grade level ($F = 3.98$, $p = .008$) and monthly family income ($F = 5.26$, $p = .002$). In particular, the vocational identity of seniors was higher than that of sophomores and juniors. In addition, the vocational identity of students whose monthly family income was 6,001 USD or more was higher than that of students whose monthly family income was 6,000 USD or less.

The emotion subdimension of vocational identity was different according to monthly family income ($F = 3.45$, $p = .017$). Particularly, the emotion subdimension of students whose monthly family income was 6,001 USD or more was higher than that of students whose monthly family income was 2,000 USD or less.

The cognition subdimension of vocational identity was different according to the type of program a student was enrolled in ($t = 3.58$, $p < .001$), the grade level ($F = 7.62$, $p < .001$), and monthly family income ($F = 5.54$, $p = .001$). Specifically, the cognition subdimension of students in the 4-year bachelor's program was higher than that of students in the 3-year diploma program. The cognition subdimension of seniors was higher than that of juniors, sophomores, and freshmen. The cognition subdimension of students whose monthly family income was 6,001 USD or more was higher than that of students whose monthly family income was 6,000 USD or less.

The behavior subdimension of vocational identity was different according to grade level ($F = 2.95$, $p = .033$). Particularly, the behavior subdimension of seniors was higher than that of freshmen and sophomores (Table 3).

Relation between ego identity status and demographic characteristics

Data concerning the relationship between ego identity status and demographic characteristics are presented in Table 4. Ego identity status was related to the type of program a student was enrolled in ($\chi^2 = 22.67$, $p < .001$), grade level ($\chi^2 = 38.54$, $p < .001$), and monthly family income ($\chi^2 = 22.03$, $p = .037$). Particularly, students in the 4-year bachelor's program were more likely to be in achievement or moratorium status, while students in the 3-year diploma program were more likely in foreclosure or diffusion status. Additionally, seniors were more likely to be in achievement or moratorium status, whereas freshmen were more likely to be in diffusion or low profile moratorium status. Moreover, students whose monthly family income was 6,001 USD or more were more likely to be in achievement or moratorium status, while students whose monthly family income was 2,000 USD or less were more likely to be in diffusion or low profile moratorium status.

Discussion

The mean scores of vocational identity in this study indicate that most students were in moderate to high vocational identity levels. The mean scores of ego identity categories in this study were similar to scores from Shin's study [23], which was 57.3 ± 10.3 for achievement, 53.0 ± 8.5 for moratorium, 36.7 ± 10.4 for foreclosure, and 47.5 ± 10.6 for diffusion category [23], which found values of 10.3% in achievement status, 13.0% in moratorium status, 13.5% in foreclosure status, 16.1% in diffusion status, and 47.1% in low profile moratorium status [23]. This criteria unavoidably produces a high frequency of individuals who are in low profile moratorium status [25]. Jones et al [25] proposed a revised cutoff rule ($M + 0.5 \times SD$) to circumvent the restricted classification outcomes that are an

Table 2 *Differences in Vocational Identity According to Ego Identity Status (N = 311).*

Ego identity status	*n* (%)	Vocational identity	Emotion	Cognition	Behavior
		M ± *SD*	*M* ± *SD*	*M* ± *SD*	*M* ± *SD*
Achievement (a)	35 (11.3)	94.66 ± 8.47	33.23 ± 4.73	35.20 ± 2.90	26.23 ± 3.47
Moratorium (b)	46 (14.8)	84.83 ± 11.20	27.41 ± 6.20	33.43 ± 2.97	23.98 ± 4.12
Foreclosure (c)	44 (14.1)	83.45 ± 12.39	28.75 ± 5.82	30.82 ± 4.82	23.89 ± 3.28
Diffusion (d)	98 (31.5)	76.15 ± 10.59	25.37 ± 5.50	29.03 ± 4.39	21.76 ± 3.63
Low profile moratorium (e)	88 (28.3)	81.48 ± 11.73	27.65 ± 6.58	31.48 ± 4.12	22.35 ± 4.72
F (*p*)		19.24 (< .001)	11.90 (< .001)	19.18 (< .001)	9.95 (< .001)
Post hoc test (Scheffé)		a > b, c > d a > e	a > b, c, d, e	a > e > d a, b > c, d	a > d, e

Table 3 *Differences in Vocational Identity According to Demographic Characteristics (N = 311).*

Demographic characteristics	Categories	*n* (%)	Vocational identity	Emotion	Cognition	Behavior
			M ± *SD*	*M* ± *SD*	*M* ± *SD*	*M* ± *SD*
Gender	Male	28 (9.0)	83.04 ± 12.22	28.29 ± 6.32	31.96 ± 4.02	22.79 ± 3.99
	Female	283 (91.0)	81.96 ± 12.34	27.62 ± 6.31	31.26 ± 4.55	23.08 ± 4.23
	t (*p*)		0.44 (.660)	0.53 (.594)	0.79 (.429)	0.36 (.720)
Type of program	4-yr bachelor's	168 (54.0)	82.17 ± 12.36	27.33 ± 6.10	32.15 ± 4.38	22.69 ± 4.36
	3-yr diploma	143 (46.0)	81.93 ± 12.29	28.09 ± 6.52	30.35 ± 4.47	23.49 ± 3.99
	t (*p*)		0.17 (.866)	1.07 (.287)	3.58 (< .001)	1.67 (.095)
Grade	Freshman (a)	100 (32.2)	82.19 ± 10.22	28.10 ± 5.51	31.40 ± 4.19	22.69 ± 4.09
	Sophomore (b)	85 (27.3)	80.62 ± 12.02	27.44 ± 6.38	30.47 ± 4.40	22.72 ± 3.82
	Junior (c)	83 (26.7)	80.45 ± 13.62	26.84 ± 6.82	30.65 ± 4.77	22.95 ± 4.19
	Senior (d)	43 (13.8)	87.70 ± 13.38	28.79 ± 6.79	34.12 ± 3.84	24.79 ± 4.90
	F (*p*)		3.98 (.008)	1.13 (.339)	7.62 (< .001)	2.95 (.033)
	Post hoc test (Scheffe)		d > b, c		d > a, b, c	d > a, b
Education of father[a]	≤ High school	145 (47.2)	81.38 ± 11.44	27.70 ± 5.92	30.80 ± 4.58	22.88 ± 3.86
	≥ College	162 (52.8)	82.72 ± 13.10	27.78 ± 6.60	31.77 ± 4.41	23.17 ± 4.50
	t (*p*)		0.96 (.339)	0.11 (.910)	1.89 (.059)	0.61 (.546)
Education of mother[a]	≤ High school	191 (61.6)	81.29 ± 11.56	27.37 ± 6.06	30.94 ± 4.28	22.98 ± 4.01
	≥ College	119 (38.4)	83.19 ± 13.39	28.15 ± 6.68	31.90 ± 4.79	23.14 ± 4.51
	t (*p*)		1.28 (.201)	1.06 (.291)	1.84 (.067)	0.33 (.739)
Monthly family income[a] (USD)	≤ 2,000 (a)	49 (16.2)	79.67 ± 10.73	26.22 ± 5.46	30.47 ± 3.76	22.98 ± 4.05
	2,001–4,000 (b)	144 (47.7)	81.51 ± 12.76	27.76 ± 6.63	30.93 ± 4.57	22.81 ± 4.22
	4,001–6,000 (c)	76 (25.2)	81.46 ± 11.07	27.45 ± 5.61	31.30 ± 4.55	22.71 ± 4.07
	≥ 6,001 (d)	33 (10.9)	89.76 ± 13.15	30.67 ± 6.85	34.15 ± 4.18	24.94 ± 4.50
	F (*p*)		5.26 (.002)	3.45 (.017)	5.54 (.001)	2.56 (.055)
	Post hoc test (Scheffé)		d > a, b, c	d > a	d > a, b, c	

[a] Missing data is not included in the values.

inevitable part of statistical features when accompanied by normal distributions in any sample. Adams [24], the tool developer, endorsed the revised cutoff rule as an acceptable modification.

As expected, vocational identity was associated with ego identity status. The level of vocational identity was higher among students who were in achievement status than among students who were in all other statuses; that is, students who were in achievement status had a clearer and more secure understanding of their goals, abilities, interests, and values than that of students in other statuses [1]. Similarly, vocational identity among students who were in moratorium and foreclosure statuses was higher than that among those in diffusion status. This means that students with a

Table 4 *Relationship Between Ego Identity Status and Demographic Characteristics (N = 311).*

Demographic characteristics	Categories	Ego identity status					
		Achievement	Moratorium	Foreclosure	Diffusion	Low profile moratorium	Total
		n (%)	*n* (%)	*n* (%)	*n* (%)	*n* (%)	*n* (%)
Gender	Male	6 (21.4)	5 (17.9)	2 (7.2)	9 (32.1)	6 (21.4)	28 (9.0)
	Female	29 (10.3)	41 (14.5)	42 (14.8)	89 (31.4)	82 (29.0)	283 (91.0)
	Total	35 (11.3)	46 (14.8)	44 (14.1)	98 (31.5)	88 (28.3)	311 (100.0)
	χ^2 (*p*)	4.61 (.330)					
Type of program	4-yr bachelor's	23 (13.7)	36 (21.4)	16 (9.5)	43 (25.6)	50 (29.8)	168 (54.0)
	3-yr diploma	12 (8.4)	10 (7.0)	28 (19.6)	55 (38.4)	38 (26.6)	143 (46.0)
	Total	35 (11.3)	46 (14.8)	44 (14.1)	98 (31.5)	88 (28.3)	311 (100.0)
	χ^2 (*p*)	22.67 (< .001)					
Grade	Freshman	6 (6.0)	10 (10.0)	15 (15.0)	33 (33.0)	36 (36.0)	100 (32.2)
	Sophomore	9 (10.6)	5 (5.9)	16 (18.8)	32 (37.6)	23 (27.1)	85 (27.3)
	Junior	10 (12.0)	18 (21.7)	7 (8.5)	29 (34.9)	19 (22.9)	83 (26.7)
	Senior	10 (23.3)	13 (30.1)	6 (14.0)	4 (9.3)	10 (23.3)	43 (13.8)
	Total	35 (11.3)	46 (14.8)	44 (14.1)	98 (31.5)	88 (28.3)	311 (100.0)
	χ^2 (*p*)	38.54 (< .001)					
Education of father[a]	≤ High school	19 (13.1)	18 (12.4)	16 (11.0)	51 (35.2)	41 (28.3)	145 (47.2)
	≥ College	16 (9.9)	27 (16.7)	28 (17.3)	47 (29.0)	44 (27.1)	162 (52.8)
	Total	35 (11.4)	45 (14.7)	44 (14.3)	98 (31.9)	85 (27.7)	307 (100.0)
	χ^2 (*p*)	4.67 (.323)					
Education of mother[a]	≤ High school	23 (12.0)	23 (12.0)	25 (13.2)	64 (33.5)	56 (29.3)	191 (61.6)
	≥ College	12 (10.1)	22 (18.5)	19 (16.0)	34 (28.6)	32 (26.8)	119 (38.4)
	Total	35 (11.3)	45 (14.5)	44 (14.2)	98 (31.6)	88 (28.4)	310 (100.0)
	χ^2 (*p*)	3.49 (.479)					
Monthly family income[a] (USD)	≤ 2,000 or less	3 (6.1)	5 (10.2)	3 (6.1)	19 (38.8)	19 (38.8)	49 (16.2)
	2,001–4,000	17 (11.8)	22 (15.3)	20 (13.9)	47 (32.6)	38 (26.4)	144 (47.7)
	4,001–6,000	5 (6.6)	10 (13.2)	15 (19.6)	23 (30.3)	23 (30.3)	76 (25.2)
	≥ 6,001	9 (27.2)	7 (21.2)	5 (15.2)	6 (18.2)	6 (18.2)	33 (10.9)
	Total	34 (11.3)	44 (14.6)	43 (14.2)	95 (31.4)	86 (28.5)	302 (100.0)
	χ^2 (*p*)	22.03 (.037)					

[a] Missing data is not included in the values.

more advanced identity status also have a clearer and more secure self-concept of their career. This result is consistent with previous studies that presented the superiority of achievement status when related to vocational development [5,16,17].

It was interesting to note that the cognition subdimension of vocational identity among students who were in achievement or moratorium status was higher than that among those students in foreclosure or diffusion status. This is in contrast to previous findings that vocational development among students in foreclosure status was similar to the development of students in achievement status [5,17,19], and that attitudes towards careers among students in foreclosure status were more mature than attitudes towards careers among students in moratorium status [17]. Previous studies indicate that moratorium status can be both positive and negative for a student [13,26]. Individuals in moratorium status are open to opportunities and alternatives [11,26], but they feel insecure and uncertain in making choices [5,13,17,19]. Individuals in moratorium status are in exploration mode (e.g., crisis) but find it difficult to commit [12]. This finding supports Marcia's proposition [11] that moratorium status is more advanced than foreclosure status.

Another important point to consider in this study was the low proportion of students in achievement status (11.3%) and the high proportion of students in diffusion status (31.5%). In light of Erikson's suggestion [10] that identity achievement is attained in late adolescence to prepare for adulthood. In Marcia's studies [11,12,27], the proportion of male college students in achievement status was 20.9% [11] and 20.8% [12] while the proportion of female college students in achievement status was 26.5% [27]. The number of students in achievement status in Marcia's studies [11,12] was higher than that in this study. Recent research found that 14.3% of college students in the United States [5] and 14.3% of college students in Belgium [28] were in achievement status. Luyckx et al [16] also reported that only 13.0% of Belgian young adult employees are in achievement status [16].

It is known that the development of ego identity is closely connected with environmental factors [13,14,20]. Kroger et al [14] suggested that a large percentage of adolescents do not reach their achievement status during the shift to adulthood. In complex, contemporary societies, including South Korea, United States, and many European countries, some college students do not want to explore career alternatives and do not try to achieve ego identity. Instead, some students internalize their parents' or a significant other's values and lifestyle choices and do not pursue a program of self-evaluation and exploration. These students prefer to focus on completing urgent tasks, such as getting good grades or finding a job, rather than exploring career and lifestyle alternatives. It is well known that taking risks and exploring can be frustrating and stressful [5,13]. Yoder [20] proposed that certain statuses, such as foreclosure and diffusion, can be more functional in a complicated, competitive society. Individuals between adolescence and adulthood and in foreclosure or diffusion status can choose to stay in these conditions, thus delaying their commitments, duties, and responsibilities as full members of society. Results from this study might show just this aforementioned situation. However, attainment of identity achievement requires both exploration and commitment [12], and nursing students can only attain identity achievement if they explore alternative decisions and adhere to their final choice despite challenges.

As expected, ego identity status is also related to grade level. A senior who might have been given more chances to explore alternatives but also commit to a specific goal can therefore obtain a more advanced identity status than does a student from any other grade level. This finding is in agreement with the idea that ego identity status progressively changes from diffusion to achievement [12–14]. In a similar vein, a previous study proposed that a student's age correlates with the progressive development of ego identity status [29]. Moreover, Marcia [11] believed that achievement status is more mature than diffusion status.

In this same manner, the vocational identity of seniors was higher than that of sophomores or juniors. Particularly, mean scores of the cognition and behavior subdimensions of vocational identity among seniors were higher than those among sophomores or juniors. This means that seniors have a clearer and more stable understanding of their goals, abilities, and values, and can actually gather information and converse with others about jobs. However, the emotion subdimension of vocational identity in seniors was not different than that for other students; this indicates that seniors, as well as freshmen, sophomores, and juniors, experience anxiety and uncertainty about their careers. Therefore, nurse educators should consider the development of the emotion subdimension of vocational identity among their nursing students, and can use the program for emotional development in nursing students [30].

In a previous study [3], the vocational identity of Australian male students was lower than that of female students. However, the vocational identity in this study was not different according to gender. This was based on the differences between the social atmospheres of the two countries. Nowadays, the numbers of Korean male students who want to enter nursing school is increasing because of the high youth unemployment rate. Therefore, Korean male students successfully entering nursing school may feel pride similar to Korean female students, and their vocational identity would be similar to that of their female counterparts.

In addition, students in the 4-year bachelor's program were more likely to be in achievement or moratorium status, while students in the 3-year diploma program were more likely to be in foreclosure or diffusion status. Likewise, the cognition subdimension of vocational identity among students in the 4-year year bachelor's program was higher than that of students in the 3-year diploma program. This can be due to the fact that the 3-year diploma program may have fewer students at the senior level.

In this study, ego identity status was related to monthly family income. Additionally, vocational identity differed according to monthly family income. These findings may indicate that family socioeconomic status is linked to identity, and may in fact be a resource for identity development. Students from high-income families might have more opportunities to experiment with alternatives, such as experiencing an overseas program or trip. On the contrary, low socioeconomic status is presumed to be an environmental barrier for a student who is attempting to progress in terms of vocational identity and ego identity status. This finding is in line with results from previous research which show that individuals facing many external barriers have a less developed vocational identity [31]. Therefore, closer attention should be given to students who faced environmental barriers, such as having a low socioeconomic status.

This study suggests that vocational identity is associated with ego identity status among Korean nursing students, and that a clear, secure vocational identity was most likely to be found among nursing students who were in achievement status. The results of this study also support the notion that the progressive development of ego identity status occurs during college [13].

This study has several limitations. First, participants in this study were a convenience sample of nursing students from two different nursing programs. Thus, generalization of these results will be limited. Second, because this study was designed as a cross-sectional research study, causal inference could not be drawn. Third, this study examined demographic factors that have been identified to be connected with vocational identity and ego identity status, but did not investigate all of the factors that possibly influence identity development among Korean nursing students.

Future research is needed to consider additional psychological and environmental factors connected to vocational identity (e.g., self-efficacy, personality, and family interaction patterns) and ego identity (e.g., self-esteem, anxiety, and parental relationships) in order to explore the complexities of identity development among nursing students. In addition, longitudinal research and qualitative research are needed to understand the development of vocational identity and the transition of ego identity status in nursing students.

Conclusion

The purpose of this study was to investigate vocational identity and ego identity status among Korean nursing students. The results of this study demonstrate the association between vocational identity and ego identity status, that is, vocational identity among students who were in achievement status was higher than for those in all other statuses. Further, vocational identity and ego identity status were linked to demographic factors including the type of program enrolled in, grade level, and monthly family income. Nurse educators should consider the progressive development of vocational identity and ego identity status in nursing students and develop systems to help students attain vocational identity and progress through the stages of ego identity development.

Conflicts of interest

The authors declare no conflict of interest.

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